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4. The effect of temperature on the general result is approximately determined.

5. The effect of the time of exposure of the photographic plate is ascertained.

6. Investigations are made respecting the effects of the Moon's altitude, and of the particular limb to points on which the measures are made.

7. The effect of any possible shrinkage of the photographic film is investigated.

8. The result of the entire set of enquiries shows that the photographic method is at least equal in point of accuracy to direct telescopic measures made on the actual disk of the Moon.

On the Comparison of the Computed and Observed Motions of the Components of the Binary System ξ Ursæ Majoris. By Prof. C. Pritchard.

About three years ago, in the first Fasciculus of the astronomical work done at the Oxford University Observatory, I published a brief account of a method which I had devised for the investigation of the relative orbits of binary stars. The method certainly offers peculiar facilities for such computations, and it seemed to me to hold out considerable promise at the time, especially as, owing to the wide discrepancies of ancient, and even of some modern, observations, abstruse and complicated mathematical processes appeared practically inapplicable. The method was, among other double stars, applied in particular to the case of *ξ Ursæ Majoris*, of which the elements are recorded in the Fasciculus referred to.

It is somewhat remarkable that Dr. Düner at Lund computed also an orbit for this system about the same time that the foregoing was computed at Oxford; that able astronomer employing an elaborate method wholly different from that devised by myself, yet an almost identity of elements was the result: and no doubt can now exist, that of *ξ Ursæ*, at least, the orbit is very approximately settled. The two sets of elements are as follows:—

	Oxford.	Düner.
Date of Perihelion Passage	1875·26	1875·29
Period of Revolution	60·80 yrs.	60·79 yrs.
Position of Node	100° 13′	101° 30′
Inclination of Orbit	56° 40′	56° 54′
Angle between Axis Major and Line of Nodes	235° 0′	234° 18′
Excentricity of Orbit	0·4159	0·3952
Semi-Axis Major	2″·580	2″·547

The following Table I. contains a comparison of the theoretical determination with observed facts during the last six years since the orbit was computed. The observed places herein given have been taken from the interpolation curve, drawn amongst the individual measures that have been hitherto published.

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I.

Date.	Position Angle from Interpolation Curve.	Computed Position Angle (Oxford Elements).	Computed Position Angle (Düner's Elements).	C—O Oxford.	C—O Düner.	Distance from Interpolation Curve.	Computed Distance (Oxford Elements).	Computed Distance (Düner's Elements).	C—O Oxford	C—O Düner.
	°	°	°	°	°	″	″	″	″	″
1875·0	322·0	322·8	323·3	+0·8	+1·3	1·03	1·05	1·08	+0·02	+0·05
1876·0	309·1	307·7	309·1	−1·4	0·0	1·37	1·24	1·26	−0·13	−0·11
1877·0	298·5	296·6	298·6	−1·9	+0·1	1·54	1·43	1·44	−0·11	−0·10
1878·0	289·0	288·0	290·2	−1·0	+1·2	1·68	1·59	1·60	−0·09	−0·08
1879·0	281·0	280·8	283·2	−0·2	+2·2	1·78	1·71	1·72	−0·07	−0·06
1880·0	274·9	274·4	277 1	−0·5	+2·2	1·87	1·80	1·80	0·07	−0·07
1881·0	269·0	268·5	271·3	0·5	+2·3	1·88	1·85	1·85	0·03	−0·03

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The curve for the last few years is based on the observations given in Table II., in which may be seen the amount of divergence of the computed places from those measured by individual observers. For the earlier years, extending from 1819 to 1878, the comparisons of the observed with the computed places, founded on the Oxford Elements, are given in the Fasciculus referred to. The comparison of Dr. Düner's places will be found on page 197 of *Mesures Micrométriques d'Étoiles doubles* (Lund, 1876).

II.

Comparison with Oxford Elements.

Date.	Observed Angle.	Computed Angle.	Diff. C—O.	Observed Distance.	Computed Distance.	Diff. C—O.	Observer.
	°	°	°	″	″	″	
1877·26	294·9	294·2	−0·7	1·43	1·48	+0·05	Dembowski
77·34	293·9	293·5	−0·4	1·46	1·49	+0·03	Plummer
77·40	294·8	293·3	−1·5	1·52	1·50	−0·02	Wilson
77·47	294·2	292·3	−1·9	1·49	1·51	+0·02	Jedrzejewicz
78·25	286·9	286·1	−0·8	1·62	1·63	+0·01	Plummer
79·18	279·3	279·6	+0·3	1·70	1·73	+0·03	Plummer
79·18	278·1	279·6	+1·5				Gledhill
80·19	273·7	273·3	−0·4	1·84	1·81	−0·03	Plummer
80·20	272·0	273·2	+1·2	1·81	1·81	0·00	Gledhill
80·48	272·0	271·5	−0·5	1·81	1·83	+0·02	Jedrzejewicz
81·25	268·1	267·1	−1·0	1·84	1·86	+0·02	Plummer

Comparison with Dr. Düner's Elements.

Date.	Observed Angle.	Computed Angle.	Diff. C—O.	Observed Distance.	Computed Distance.	Diff. C—O.	Observer.
1877·26	294·9	296·2	+1·3	1·43	1·49	+0·06	Dembowski
77·34	293·9	295·5	+1·6	1·46	1·50	+0·04	Oxford
77·40	294·8	295·0	+0·2	1·52	1·51	−0·01	Wilson
77·47	294·2	294·4	+0·2	1·49	1·52	+0·03	Jedrzejewicz
78·25	286·9	288·4	+1·5	1·62	1·63	+0·01	Oxford
79·18	279·3	282·1	+2·8	1·70	1·74	+0·04	Oxford
79·18	278·1	282·1	+4·0				Gledhill
80·19	273·7	276·0	+2·3	1·84	1·82	−0·02	Oxford
80·20	272·0	276·0	+4·0	1·81	1·82	+0·01	Gledhill
80·48	272·0	274·3	+2·3	1·81	1·83	+0·02	Jedrzejewicz
81·25	268·1	270·0	+1·9	1·84	1·86	+0·02	Oxford